semiconductor layer disposed on each first wafer surface, and a plurality of integrated circuits formed on each semiconductor layer. The plurality of integrated circuits include a node formed on the semiconductor layer adjacent to the optical transmission interface to couple optical data into and out of the plurality of integrated circuits. An optical data bus is included for coupling optical data between one wafer node and other nodes of wafers within the stack. The optical data bus extends axially through each of the optical transmission interfaces normal to each first wafer surface at each node. Alternatively, the foregoing type of optical transmission interfaces may be omitted and the nodes formed at an edge of each wafer such that the optical data bus extends along the edge of each wafer normal to each of the first wafer surfaces to form different interfaces therebetween. The integrated circuit device also includes the capability to replace defective wafers found in the stack of wafers.

Please amend the paragraph beginning on page 6, line 15, as follows:

The preceding and other shortcomings of the prior art are addressed and overcome by the present invention that provides an integrated circuit device. The device includes a wafer having a first surface, a second surface opposite the first surface, an optical transmission interface extending from the first wafer surface through to the second wafer surface, a semiconductor layer disposed on the first wafer surface, and a plurality of integrated circuits formed on the semiconductor layer. An optical data bus extends through the optical transmission interface normal to the first wafer surface and a plurality of devices are coupled to the optical data bus. To provide optical coupling between the plurality of integrated circuits and the optical data bus, a node is formed on the semiconductor layer adjacent to the optical transmission interface.

A2 Alternatively, the foregoing optical transmission interfaces may be omitted and the node formed at an edge of the wafer such that the optical data bus is extended along the edge of the wafer normal to the first wafer surface, defining a different optical interface.

Please amend the paragraph beginning on page 9, line 22, as follows:

A3 Referring to FIGs. 2a and 2b, to provide interconnectivity between the wafer circuitry 16 and external devices (not shown), each wafer node 18 includes a transmitter circuit 28 and a receiver circuit 30. For purposes of the present invention, a single node 18 (transmitter/receiver circuit pair) or multiple nodes may be formed on the wafer 12. In the single node embodiment, a single optical data bus 20 or waveguide 22 (described below) extends at the node 18 through an optical transmission interface 26 to facilitate a single-channel broadcast architecture between the wafer 12 and external devices. Alternatively, the nodes 18 can be placed on the edge of the wafer 12.

IN THE CLAIMS:

Please cancel claims 9 and 10 without prejudice. Please amend claims 1-5 and 37 as follows:

A4 1. (Amended) An integrated circuit device comprising:

a wafer having a first surface, a second surface opposite said first surface and an optical transmission interface extending from said first wafer surface through to said second wafer surface;

a semiconductor layer disposed on said first wafer surface;

a plurality of integrated circuits formed on said semiconductor layer;

an optical data bus extending through said optical transmission interface normal to said first wafer surface, said optical data bus having first and second ends and being